INTERNAL QUALITY SYSTEM PERFORMANCE: CASE STUDY AT THREE INDONESIAN NURSING SCHOOLS

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ABSTRACT

This paper describes internal quality system performance at three Indonesian nursing schools and examines the match of the existing accreditation programmes with the developing internal quality system. A cross sectional study is used with self-administered questionnaires and applied to selected nursing schools. The questionnaire was designed according to categories of framework of total quality management model. Interview and discussion with respondents including snowball sampling to other teachers and staffs were performed to clarify and validate data and to enriched the information The activities measured were the enabling and the results factors. The enablers were including Leaderships, strategy, resources, human resources, educational management, teaching learning process, research and development and also evaluation mechanism, while the results were covering students and personnel satisfaction and partnership.

Results shows that some enabling factors were not included in the accreditation, while several indicators in the sub component of accreditation did not explicitly reflect internal quality system performance. The school stratum as the outcome result of a quality measure is analogue to customer satisfaction, which would depend on direct influence of internal factors such as quality of schools leadership, strategy and educational management. Since the total accreditation score affects school strata and public recognition, it is necessary to use more objectives and relevant indicators by incorporating the internal and external factors as a measure of school quality performances.

Key words: *accreditation, education, quality system evaluation, nursing*

INTRODUCTION

Improving quality of nursing education is a market driven issue. Lindeman had stated that producing qualified nurses to work in highly competitive health care systems, required strong commitment from nurse educators to implement quality system (Lindeman, 2000). Accordingly, the Indonesian nursing schools should also response to the growing need and demand of higher quality of health service by improving and strengthening the quality of nursing education.

Quality system performed at school should base on formulated standard, which need regular/ continuous assessment of planned activities to achieve the outcome results and enable to evaluate the implementation of standard (Donabedian, 1998). Therefore, it is necessary to systematically collect and record the activities and make a necessary improvement if needed.

In industrial and business arena the three famous quality systems widely used are, the Baldridge Award, the Deming Prize and the International Organization of Standardization (ISO) 9000. The Baldridge Award measure customer satisfaction and retention issue and focused more on leadership, strategy, human resource development and management, whereas ISO 9000 more on accreditation (Nebres, 1998). The Deming Prize stated 14 points in quality, productivity and competitive position, which later described as the System of Profound Knowledge, which had been applied for education. In health care services, Donabedian concepts of quality system that were categorized into three sets of elements i.e. structure, process and outcome, are mostly use as an approach to improve quality performance. Similar approach was also introduced and used in the education systems (Mya Tu, 1996, Davidson, 2000).

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In the Indonesian nurse education system, quality performance was measured using accreditation mechanism, which is the external quality performance measure regulated by the government. The school quality performance is indicated by its accreditation strata (strata A, B, C, D, and non strata) that is calculated using a score model appointed to seven components of institutional elements against standard score/bench-marking for their quantity, quality, effectiveness and relevancy to the school program. The elements comprised of human resources, curriculum implementation, source and resources, administration, students, general condition and institutional development components. The results of this external quality performance measures were corresponding to the school documentation. It designates quality of performance based on what explicitly showed in the document but rarely notify the cause of inefficiency within the educational process nor able to classify factors which needs improvement (Depkes, 2000).

This study focuses to answer questions such as to what extent internal quality system performance measures reflect the quality performance of the school and what factors support and hinder the implementation of quality systems. The internal quality system performance is defined as a process in which the enablers performed activities to achieve results. This study is not intended to evaluate the effectiveness, efficiency or impact of nursing education but rather accounts of action taken by management of the school.

METHODS

This case study using a cross-sectional design was carried out during April–May 2001. The three nursing schools were taken from the twelve nursing schools participated in the accreditation study conducted by the Center for Health Manpower Education (CHME) during the year 2000 (Depkes, 2000). The criteria for selection were based on ownerships (government and private) and level of strata (A and B). With these criteria and accessibility to sample location, 2 strata A (Akademi Perawat Depkes Jakarta/government and Akademi Perawat Depkes Semarang/government) and 1 strata B (Akademi Perawat Yayasan Jalan Kimia/private) were selected as study location. The respondents were targeted to represent "the enabler" and specified into 4 categories; Category 1: Director/ Head of program study; 2:Vice director and also lecturer; 3:management or administrative staff but not lecturer and 4: lecturer with at least has 4 to 5 years teaching experience. The internal quality system performance measure was constructed according to types of activities label as quality system following the Donabedian quality system, Marwick (Marwick J),the Baldrige's approach and Dimmock frameworks (Figure 1).

A self-administered questionnaire was designed according to categories of framework of total quality management model and constructed based on the validated quality variables developed by Wagner et.al. (Wagner, 1999) and NIVEL (NIVEL, 1999), and Apollon and Zich from a CRE project (Apollon, 2000) and Wilkes

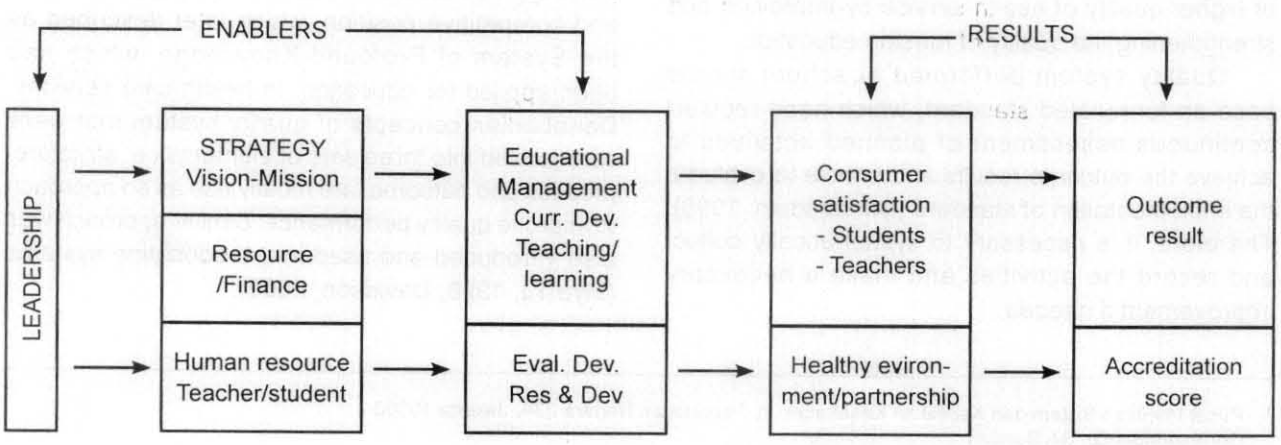

Figure 1. Types of activities labelled as quality system

(Wilkes, 1999). The questionnaires were divided into part.1 factors internal to institution, comprise of 6 sections with a total of 74 items and part.2 factors external to institution with 10 items. Information on external quality system performance measure including student satisfaction and performance was taken from previous accreditation study results (Depkes,2000). Interviewe and discussion with respondents including snowball sampling to other teachers and staff were performed to clarify and validate data and to enriched the information.

Quantitative data (Likert score, frequencies) were analyzed and tabulated according to the types of activities labelled as quality system. Qualitative data and secondary information were grouped and tabulated as well. Method of data triangulation was also used to reduce response biases. Revalidation of information was conducted by conforming results to several respondents, asking opinions from other nurses from other nursing schools and from several colleagues at CHME.

RESULTS

Respondent information

Akademi Perawat Depkes Jakarta (Jakarta) started the program in 1962 and was one of the oldest nursing schools in the country. It had 56 staffs, consists of 1 director, 2 vice-directors, 28 administrative/management staff and 28 lectures. Akademi Perawat Depkes Semarang (Semarang) had 40 staff, composed of 1 director, 2 vice-directors, 13 administrative/management staff and 24 lectures. Akademi Perawat Yayasan Jalan Kimia (Yayasan) had 25 personnel consists of 1 director, 1 vice-director, 7 administrative/management staff and 15 lectures. The total respondents from Jakarta were 10, Semarang 14 and Yayasan 8, with a total of 3 directors, 5 vice-directors, 6 administrators and 18 lectures.

Internal quality system performed at the three nursing schools

Organizational Strategy

School vision, mission, and structure

Jakarta Nursing School had short written description of schools vision and mission in their institutional profile. A description of institutional objective in concordance with quality policy was also available. The same situation occurred at Semarang and Yayasan except that they had not yet formed a clear quality policy and quality manual. The three schools had hierarchical structure and somewhat formal to rather informal communication mechanism. Jakarta and Yayasan had centralized decision-making process whereas Semarang had more toward decentralised mechanism. The leadership qualities which measured according to director's activities (1.To indicate tasks and quality improvement to staff, 2.To assess staff performance, 3.To monitor the implementation of teaching learning process) showed that Jakarta director's exercised all three leadership categories, while Semarang and Yayasan, partly implemented the second and third leadership categories. With regard to innovation, Yayasan was somewhat reserved, whereas Jakarta and Semarang was more flexible.

School customers

All schools indicated that students were primary/internal customers followed by teachers and staff, few mentioned clinical instructors. Clinical and practical units such as hospitals and health centers were pointed as external/secondary customers. Some mentioned parents, patients, and private sectors as additional external customers.

School Quality team

About 4 out of 10 Jakarta's respondents stated a quality team who worked with external partner and had supported by internal budget was formed. Likewise, in Semarang only 3 respondents mentioned that there was a quality team and some internal reserved budget even though no specific quality assurance activities were programmed. However, there was no school quality team in Yayasan. At all schools the Directors were the promoter of quality improvement activities.

Resources and Finance

All schools satisfied with their facilities except for vehicles and libraries. The use of school facilities at Jakarta and Semarang were considered over-utilized. Jakarta and Semarang had funds from the government and community/parents participation, whereas, Yayasan received funds mostly from students. About 46–60% of the existing budget at each school was used for promoting quality of education and the rest for non-technical elements and facilities.

Human Resources

Personnel

Training policy and criteria for promotion.

All schools indicated that the first priority policy for staff training and development was given to lectures to improve professionalism. The promotion criteria for lectures were varied among schools. Jakarta's first criteria was performance in clinical/nursing research and clinical nursing care, while Semarang and Yayasan were based on performance as teacher and as a planner/co-ordinator of educational programme. Jakarta's second priority for training was given to supervisory/academic staff to advance the expertise, whereas, Semarang second priority was for other staff to advance their expertise according to quality policy. Yayasan, on the other hand, had priority policy toward selecting new personnel with a positive attitude toward quality assurance.

Provision of plan and time for lecture and staff development

Almost all respondents stated that planned and time were made available for staff development. For lecturers, the developments were geared toward activities related to professional development and quality improvement program as well as for inter collegial assessment. For staffs, higher opportunities were given to involve in quality improvement activities, multi disciplinary and inter collegial assessment.

Staff motivation/stimulation

Compare to other two schools, Jakarta staffs had the highest motivation to develop their professionalism and to participate in quality improvement activities. Continuous feedback given by Jakarta and Yayasan principals triggered their staff motivation, even though Yayasan staffs had been given less chances to participate in quality improvement activities. Semarang staffs, even though had higher ability to participate in quality improvement activities, received less feedback on their performance, therefore had showed less motivation to improve professionalism.

With regards to personnel bonds, absenteeism and willingness to help, Jakarta and Semarang mentioned that they had strong bonds with the schools. Yayasan had indicated that the bond was quite strong (scale 3 to 5). Almost all respondents disagreed that rate of absenteeism of their schools was high and agreed that there were indication of staff willingness to help and provide prompt service to students and faculties.

Students

Selection criteria and enrolments

The general criteria used for student selection including height, health status, and high school achievement/performance. The specific criteria such as, criteria for suitability (such as personal and intellectual characteristics), and English language competency were added at the selection process at Jakarta and Semarang.

The average numbers of applicants for freshmen year during the last three consecutive years were 700 for Jakarta; 600 for Semarang and 150 for Yayasan. During the academic year 2000/2001 and the last two academic years, students selected in Jakarta had an average 80–100% correct entrance examination results, whereas Semarang had score range from 49.5–69.5%. Within the last two years, Yayasan had students average correct entrance score of 69.5%, while in the year 2000/2001 the correct score was 80–100%. The number of student enrolled compare to total applicant was varied among schools; Jakarta had a ratio of 1:10; Semarang 1:8 and Yayasan 1:2.

Involvement of students/students organisation

Jakarta students had involved in quality improvement project and had participated in meeting to discuss problems, complaints and evaluating quality improvement. At Semarang, their involvement was depending on type of activities carried out by the school and yet none of Yayasan students had involved in quality improvement activities or in developing quality criteria. At all schools, there were no students' involvements in designing lesson plan other than providing input at the beginning of a course.

Educational management

Curriculum Development

At each school there were unit responsible for organising and monitoring curriculum implementation, including syllabus development and lesson plan as well as developing guidelines for formative and summative evaluation. Accreditation document showed that 80–100% of subject taught at the 3 schools had syllabus and lesson plan. Each school had put into standards of operation most of the education manual and guidelines provided by CHME for teaching and

learning activities including standard for audio visual aids, laboratories, workshops facilities, examination systems and field practicum.

Documentation and information system.

The information system was not centrally organised at the three schools and as a consequences data or information was spread out at each unit/department. There was no specific unit assigned to accommodate all information regarding academic activities, human resources and finance.

Implementation of teaching - learning.

Interviewed data showed that method use in teaching learning process was mostly in kind of lecture and seldom used problem solving techniques due to limited time compare to the subject taught and the way the syllabus constructed. In laboratory and field practices teachers developed checklist to assess students' progress.

Program study and workload.

Jakarta and Semarang respondents mentioned that there were too many program / parallel class offered and therefore schools workload were heavy. Due to this situation, they had difficulties to maintain standard ratio for teacher and student (1:8). At Yayasan, about 5 out of 8 respondents gave indication that their works to serve 193 students were heavy because of limited quantity and quality of school personnel.

Students learning behaviour and student satisfaction

In conducting teaching learning, school had to deal with students' characteristics or to develop certain characteristics which relevant to professional needs. Jakarta had varied students' characteristics, which they grouped into excellent, moderate and low performance students. They had not found certain method to deal with low group students other than assigning tutors. Semarang and Yayasan used reward and punishment method to deal with students' characteristics and also exercising reflective teaching at clinical practice. To help students improving basic skills, all school provided intervention program such as activities related to improving emotional and spiritual, thinking skills and leaderships through students' organisation activities and extra curricular program. Students were reported satisfied with their schools performance, even though some materials were taught too much and some teachers could not fulfilled their teaching schedules on time.

Partnership/Involvement of external customers.

All schools had organised partnership with customers such as hospitals, health centers and other similar schools in the area of clinical/field practicum. Mutual agreement was made to provide part-time teaching staffs and teamwork to produce manual for practical work and student assessment format. The partnership was thought to be positive and conducive for learning improvement even though some negative aspects, such as the use of unprofessional service method in the clinical practice were found within this partnership; and this condition confused and affected students' attitude.

Evaluation and Monitoring

Teachers at Semarang and Yayasan evaluated and monitored the teaching learning process individually by and reported the results to their academic unit while in Jakarta, each department co-ordinators had responsibility to evaluate and monitor the process. Formative and Summative evaluation using questionnaires were performed during the educational process, while checklist was used to measure competency and clinical skills. The results of evaluation were discussed in the lecture meeting.

Research and Development

Jakarta had limited research facilities while Semarang was in the process of developing a research unit for innovation and experimentation of teaching learning materials. Even though both schools had teachers experienced in research that were gained during post-graduate training and participation in research activities outside the schools, they had not been able to produce few modules for educational materials. On the other hand, Yayasan did not have any facilities for research nor had produced any educational modules.

Reflection of accreditation measures at the three nursing schools

The previous external quality performance measure showed the strength and weaknesses of school according to the component measures. Jakarta had the highest component score for human resources and student components and the lowest in

administration. Yayasan was the best in component curriculum implementation but lowest almost in all other sub components.

When comparing the lowest and the highest sub-components score among the schools, the lowest score of each sub component was found at component human resources, school condition and institutional development at all schools. Jakarta and Semarang had the lowest score for curriculum implementation and Yayasan and Semarang for component students

Jakarta had the weakest score in quantity of teachers and instructors, with a ratio 1 : > 10 for teacher/instructor and student (benchmark: 1 : < 8). Semarang had lowest score in quantity and effectiveness of administrative personnel, with a ratio 1 : > 25 for personnel and students, and less working hours per week (30–35 hrs/week compare to benchmarked > 35 hrs/week). Yayasan also had problems with the quantity of full-time teachers and administrative personnel; their ratio was far below standard.

In school condition components, both Jakarta and Yayasan had weaknesses in security personnel due to no basic security training. Semarang had lack of janitor. Within the institutional components, Yayasan had the lowest score because of no report/information on research activities, graduates and community services. Jakarta and Semarang had poor report on graduate information and less effectiveness and relevancy score for seminar/workshop activities.

Within the curriculum implementation document, Jakarta had the lowest score for quality of evaluation in teaching learning, specifically on the frequency of evaluation. Semarang was weaked in providing feedback and follow-up of evaluation. For student component, Semarang had weaknesses in the quality of student enrolled. The entrance examination grade on average was 69–79% correct answers owned by 20% students and 40–59% belong to other 80% students. Yayasan had the lowest score for no plan for mentoring students and no report on mentoring activities. Furthermore, Yayasan students organization activities and their involvement with school activities were also low (41–55.9%). At all schools, the sub component of resources and administration score were high.

DISCUSSION

This study shows that, despite the need for more refining and testing the internal quality measures in a broader scale to produce valid and reliable measurements, the internal quality system performance measure can provide detail information regarding the quality of enabler factors which were considered less in the external quality measures.

Strategy, mission, and vision

Put vision, mission and quality strategy in writing

There were no indicators to collect information regarding school vision, mission and goal in the accreditation document. Yet, the internal quality measurements showed that within the school which had clear written policy and goal of education and which also had flexible attitudes toward innovation had group which highly motivated to develop their professionalism and to participate in quality improvement activities. Transparencies of school vision, mission and quality strategy to staff can enhance quality performance. Consequently, the external quality measures should incorporate this item in the instruments when accredit the schools.

Define specific indicators for internal/external customers and intensify their involvement in program development

Internal and external quality measures could provide information regarding students and their involvement with schools. However, it did not elaborate in which categories of school activities the students involved. Students and students' organization are important internal clients to serve by the school because as Schroeder said *'internal customers are persons within the organization who depend on our performance in order to perform well them selves'* (Schroeder). As customers, students input to quality criteria and school quality systems will accommodate their needs and accordingly, will widening their views on the importance of each topic learned. Subsequently, this may trigger their ability to sharpen their critical thinking and value judgement as well as their motivation to improve the learning ability.

Similarly, community/stakeholders as external customers or school partner concerned with school products, because the school accountability could influence the public trust in determining the cost and funds that could go into the school system (Lindeman, 2000). Consequently, involvement school partners (i.e. health center, hospital) in education should be intensified by putting more roles in provision of places and instructors for clinical/field practices. Accordingly, indicators to measure the performance of internal and external customers in school program should be made more specific.

Resource /Finance

School resource and documentation system need improvement

Accreditation instrument can show complete information on resources and finance as well as showed the availability of documents, but could not visualize the flow of documents. The internal quality measures indicated that unavailability of appointed unit to centrally organise documents and to provide information about school program can create difficulties to make informed better decision especially for a new candidate. In the case where candidate who enter the school without knowing what exactly she/he is going to be in the future, could influence her motivation either to continue study or to quit school. In this situation, school would face problem to maintaining best selected students and motivating student from lacks of enthusiast for future carrier.

Human Resources

Stimulate development of management skill and their measurement indicators

Accreditation component provided clear information about director qualification and his/her effectiveness on the assigned job. However there are no indicators specifying quality of leadership or management style, nor the level of staff motivation and satisfaction. In the internal quality system performance, the leadership pattern was explored. The study shows that the school that implement the leadership criteria had higher teacher/staff satisfaction than those that did not. Thus, leadership pattern can affect level of staff satisfaction and consequently affect quality of staff performance. Leadership commitment is important to the success of educational program, therefore management involvement in the overall teaching learning activities through monitoring and assessing the process are crucial. Accordingly, it is necessary to stimulate development of management skill and their measurements indicators.

Educational management

Redevelop indicators to measure teachers relevancy in teaching (content and method) and formalize role of quality team

There were no certain units within school that are responsible to carry out quality improvement activities and to measure quality of teaching learning process. Quality of educational program will depend on quantity and quality of staff and their commitments to follow and implement the program. Too many program studies and/or other responsibilities implemented at schools created imbalances with time and efforts to carry out regular program.

In the accreditation document, teacher relevancy with the course taught was measured based on the educational/professional background and the level/degree of education. A teacher with a different profession will receive a low score if she/he teaches subject outside her profession. Similarly, those with different profession but having special training/ certificate in the subject or had experienced in learning and teaching the subject will also get low score, whereas, those who had similar professional background but had little knowledge on the subject taught will automatically get higher score.

Even though, it is important that each school should has enough teachers in numbers and in quality, it should differentiate teacher's credibility in profession and credibility in mastering the subject content ("what you teach and how you teach it). Both are not equal indicators. Experts in the subject matter and resource materials determine the degree and the quality of training (Gee,1988). Consequently, there is a need to redevelop indicators to measure teachers relevancy in teaching (content and method) and to formalize a quality team and to maintain ratio teachers/staff and students relative to standards, and to adjust number of program according to school condition.

Develop indicators and Increase formalization of educational methods

The Internal quality measured showed that the quality of teaching learning was influenced by students

learning behaviour and satisfaction, time provided to teach the subject and syllabus development as well as program intervention performed to improve student basic skill. The unspecified syllabus development techniques created difficulties in measuring deficiency of teaching method, whereas, variability of students characteristics in learning influenced the level of retention of a subject and ability to perform important practical procedures. Less frequent and less intense monitoring and evaluating teaching learning activities as well as guiding student learning abilities will influence quality of students and teachers performance.

The external quality indicators, on the other hand, only measure the completeness of items within curriculum and syllabus documents. There were no indicators reflected the content/variability of teaching methodology. Thus, it could not reflect the actual quality of teaching learning process and could not differentiate quality of teaching learning process among schools. At the end, it cannot provide feedback to school of where the causes of problems are, such as, the cause of low retention rate, high rate of teachers' absentees or incomplete lesson plan. Because teaching learning activities is the heart of the educational process, it should be integrated and formalized in the focus of quality improvement activities.

Research and Development

Improved education related research and development

External quality measures can visualised the quality and effectiveness research activities and other school activities related to community service. Both internal and external quality measures showed that there were limited activities in research specifically related to development of teaching learning methodology. The schools, which also function as a centre of excellence, need to enhance their capacity in doing research to improve the quality of education.

CONCLUSION

In summary, the school strata as the outcome result of a quality measure, is analogue to customer satisfaction described by Dimmock. Customer's satisfaction as an outcome result would depend on direct influence of internal factors such as quality of school's leadership, strategy, educational management and all other enabling factors (Dimmock, 1995). Accordingly, this case study using internal quality system measure was able to visualize several components, which were not covered in the accreditation instrument. Therefore, Accreditation as a measure of school quality performance and a tool to improve quality of education, should not only showing quality performance of the external conditions but should also exposing the causes of inefficiency and identifying factors needed to improve the quality of education. Since the total accreditation score affects school strata and public recognition, it is necessary to use more objective and relevant indicators by incorporating the internal and external quality factors as a measure of quality performance.

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PATIENT CHARACTERISITCS AND PHYSICIAN FACTORS DETERMINING THE UTILIZATION OF AUTOMATIC CLINICAL ANALYZER

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ABSTRACT

The changing of disease patterns from infectious diseases to heart, cancer, and degenerative diseases needs advanced technologies to support diagnosis and to give therapies. The Automatic Clinical Analyzer (ACA) is one of modern laboratory equipments which continuously developed to enhance patient service outcomes. Previous researches showed its utilization rates varied 20–46.6% from total capacities per year. It indicated low utilization problems. So this research aimed patient characteristics and physician factors determining the utilization of the ACA. This was a descriptive study with a to-cross sectional design. Data were collected by interview to patients visited laboratories and physicians who referred patients for determine laboratory examinations using the ACA. The study was conducted in 2 (two) public hospital laboratories and 4 (four) private clinical laboratories in Surabaya and Malang, East Java Province. Data were analyzed descriptively. Results showed that the patient characteristics who used ACA were higher proportion of those with older aged, women and senior high school to above education levels. Access to the services was also a determining factor of the ACA use because further distance increased transportation cost to reach the facilities. It also showed that the higher patient income received more services from the ACA and likely to visit private laboratories. From the physician viewpoints, the factor determining the ACA use were that exmination results supported diagnosis, quickly be knew or received and easy to get. The study recommends to conduct further ACA studies associated with feasibility and effective cost to respond equity problems and the efficiency of ACA use.

Key words: *utilization, Automatic Clinical Analyzer, patients, physicians*

INTRODUCTION

Medical technology, which comprises devices, drugs and procedures for patient management, is continuously developed to improve the outcome of patient cares. Advanced medical technology equipments can be cost-effective but the broader pictures must be appreciated. Changing in the pattern of diseases from infectious diseases to heart, cancer and chronic degenerative diseases requires advanced technology for its diagnosis and treatments. The use of new medical technology tends to increase because of the accuracy, specificity and sensitivity of the machine, resulting the precise diagnosis. Automatic Clinical Analyzer (ACA) is a modern laboratory equipment that has more test capabilities, more investment cost (29.06% of the total cost) and also high operational and maintenance costs (70.94% of the total cost) (PPEKI,1991). This machine is not only expensive to buy, but also expensive to maintain and to operate, resulting the cost for every test to be expensive. In East Java Province, the ratio of ACA unit is 0.27 per 100,000 populations (MOH, 1997) in which 92 units of ACA were installed in private clinical laboratories located in 26 districts. Data on numbers of ACA in hospitals were not available. Consideration must be given to the supporting infrastructure necessary for continuing use of the device. Those that can lead to increasing price i.e. quality and quantity of electricity supply, availability of trained engineers to maintain the machine, skilled staffs to operate the ACA and interpret the results, the supply of reagents, replacement components or spare parts and acceptability of procedure to operate ACA.

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